MME 523   Fall 2015

Applications of Analysis

instructor: John Goulet, PhD   mathematical Sciences WPI

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office hours: Tuesday 1 to 3:30 or by appointment. Help by email always available!

Limits

Differentiation

concepts
Mean Value Theorem

Integration

Concept
Riemann Sums
Approximations
Fundamental Theorem of Calculus
Improper Integrals

Historical Considerations

Archimedes, Newton

Series

Geometric, p series, harmonic

Tests for Convergence

Integral
Comparison, root, nth term
Error estimation and series approximation

Taylor Series

Estimating Pi

Numerical Approximation of Solutions of Differential Equations

Regression Analysis and Calculus

Technology: Excel, Maple

Grade: 60% homework, 40% exam (November 3)